



Nitrate Monitoring Fact Sheet

Who Monitors For Nitrate?

All Public Water
Systems Supplied By
Surface Water or
Ground Water

All public water systems supplied by ground water or surface water must monitor for nitrate. Nitrate is monitored on either an annual or quarterly basis. The majority of Indiana's public water systems monitor for nitrate annually. However, a significant number are required to conduct quarterly monitoring for nitrate. The required monitoring frequency depends on the system's classification (community, nontransient noncommunity, or transient noncommunity), water source (ground or surface), and the levels of nitrate which have been previously detected in the system's water.

What Are The Health Effects of Nitrate?

Methemoglobinemia -
"blue baby syndrome"

Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six months of age. The illness caused by high nitrate levels is known as methemoglobinemia or "blue baby syndrome". It is caused when nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen carrying capacity of the infant's blood leading to an acute illness. Symptoms of the illness include shortness of breath and blueness of the skin. Immediate medical attention is needed if these symptoms develop. The maximum contaminant level (MCL) for nitrate has been established at 10 milligrams per liter (mg/l)

What Are Sources of Nitrate?

Nitrate can enter drinking water from a variety of sources. Potential sources of nitrate include runoff/seepage from fertilized agricultural lands, municipal/industrial wastewater, refuse dumps, animal feedlots, septic tanks, and decaying plant debris. Wells closer to sources of nitrate and shallow wells are more likely to experience nitrate contamination.

Monitoring Frequency for Nitrate

Community and Nontransient Noncommunity Public Water Systems

Ground Water Systems:

Base nitrate monitoring for community and nontransient noncommunity public water systems using ground water is required annually. If any result is greater than or equal to 5 mg/l (50% of the MCL for nitrate), the system must conduct quarterly monitoring. Quarterly monitoring must be continued for at least four consecutive quarters. If results are determined to be "reliably and consistently below" the nitrate MCL (10 mg/l), the system may be returned to annual monitoring. Future annual samples must then be taken in the quarter which previously yielded the highest result.

Surface Water Systems:

Base monitoring for community and nontransient noncommunity public water

systems using surface water is required quarterly. The nitrate monitoring frequency for surface water systems may be reduced to annual if four consecutive quarterly monitoring results for the system are below 5 mg/l. Future annual samples must be taken in the quarter which previously yielded the highest result.

Transient Noncommunity Public Water Systems

Base monitoring for transient noncommunity public water systems (supplied by either ground or surface water) is required annually. If the average of any annual sample result and a confirmation sample is greater than 20 mg/l, the system is required to conduct quarterly monitoring for nitrate (see MCL exceedance discussion below).

What If Nitrate Results Are Greater Than The MCL?

For all systems, if any annual or quarterly nitrate monitoring result is in excess of 10 mg/l, the system is required to collect a nitrate confirmation sample. The average of the initial and confirmation sample is used to determine compliance with the MCL. Further requirements for specific types of systems are as follows:

Community and Nontransient Noncommunity Systems

If the average of the initial and confirmation samples is greater than 10 mg/l, the system must conduct quarterly nitrate monitoring, issue public notification, and pursue remediation of the contamination.

Transient Noncommunity Systems

If the average of the initial and confirmation sample is between 10 and 20 mg/l, the system may remain on annual monitoring. The system may also continue to supply drinking water subject to the following five conditions: 1) water will not be available to children under six months of age, 2) there will be continuous posting of the fact that nitrate levels exceed 10 mg/l and potential health effects of exposure, 3) local and state public health authorities shall be notified annually of nitrate levels that exceed 10 mg/l, 4) no adverse health effects shall result, and 5) the Commissioner of IDEM may require additional notice to the public. If the average of the initial and confirmation sample is greater than 20 mg/l, the system must provide public notification, conduct quarterly monitoring, and pursue remediation of the contamination.

Who Do I Contact If I Have Questions?

You should contact the *IDEM Drinking Water Branch* if you have any questions regarding nitrate monitoring. Our number is (317)308-3282. You may also contact the *IDEM Environmental Helpline* at (800)451-6027, or the *EPA Safe Drinking Water Hotline* at (800)426-4791.

Rule Citations

327 IAC 8-2-4 and 327 IAC 8-2-15

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